

IN THE CLAIMS:

The claims are not being amended at this time, and are presented below for reference purposes only.

1. (Previously Presented) A method of patterning a layer of photoresist which has been applied over a photomask substrate, comprising:

exposing a surface of said photoresist to pattern imaging radiation; and

prior to development of said photoresist to form a pattern, applying a vacuum to said surface of said photoresist for a period of time sufficient to allow pattern imaged critical dimensions to equilibrate across said photoresist, wherein said vacuum applied to said surface of said photoresist ranges from about 5×10^{-6} mTorr to about 5 mTorr, whereby an improvement in critical dimension and uniformity in a subsequently developed photoresist pattern is obtained.

2. (Original) A method in accordance with Claim 1, wherein exposure of said imaged photoresist to said vacuum is performed at a substrate temperature within the range of about 18°C to about 60°C, for a period of time within the range of about 10 minutes to about 70 hours.

3. (Original) A method in accordance with Claim 2, wherein exposure of said imaged photoresist to said vacuum is performed at a substrate temperature within the range of about 18°C to about 40°C, for a period of time within the range of about 20 minutes to about 12 hours.

4. (Original) A method in accordance with Claim 1, wherein said radiation is e-beam radiation.

5. (Previously Presented) A method in accordance with Claim 1, wherein said imaging radiation is optical radiation.

6. (Original) A method in accordance with Claim 1, wherein exposure of said imaged photoresist to said vacuum is performed prior to the performance of a post-exposure bake process.

7. (Original) A method in accordance with Claim 1, wherein said exposure of said imaged photoresist to said vacuum is performed prior to development of said photoresist to create a pattern having openings through said photoresist layer thickness.

8. (Previously Presented) A method of patterning a layer of photoresist which has been applied over a photomask substrate, comprising:

exposing said photoresist to imaging radiation;

developing said photoresist to create a developed photoresist pattern having openings through said photoresist layer thickness; and

exposing said developed photoresist to a vacuum at a substrate temperature within the range of about 20°C to about 60°C for a period of time within the range of about 10 minutes to about 60 minutes, at a process chamber pressure ranging from about 5×10^{-6} mTorr to about 5 mTorr, whereby an improvement in line edge roughness of pattern openings of said developed photoresist is obtained.

9. (Previously Presented) A method of patterning a layer of photoresist which has been applied over a photomask substrate, comprising:

a) post-apply baking said photoresist;

- b) exposing said photoresist to imaging radiation, whereby a pattern imaged photoresist is created ;
- c) exposing said pattern imaged photoresist to a vacuum for a period of time sufficient to allow pattern imaged critical dimensions to equilibrate across said photoresist, at a process chamber pressure ranging from about 5×10^{-6} mTorr to about 5 mTorr;
- d) post-exposure baking said imaged photoresist; and
- e) developing said imaged photoresist to create a pattern having openings through said photoresist layer thickness.

10. (Original) A method in accordance with Claim 9, wherein exposure of said imaged photoresist to said vacuum is performed at a substrate temperature within the range of about 18°C to about 60°C, for a period of time within the range of about 10 minutes to about 70 hours.

11. (Original) A method in accordance with Claim 10, wherein exposure of said imaged photoresist to said vacuum is performed at a substrate temperature within the range of about 18°C to about 40°C, for a period of time within the range of about 20 minutes to about 12 hours.

12. (Original) A method in accordance with Claim 9, wherein said radiation is e-beam radiation.

13. (Original) A method in accordance with Claim 9, wherein said radiation is optical radiation.

14. (Original) A method in accordance with Claim 9, wherein said method further includes the following step:

f) exposing said developed photoresist to a vacuum at a substrate temperature within the range of about 20°C to about 60°C for a period of time within the range of about 10 minutes to about 60 minutes, at a process chamber pressure ranging from about 5×10^{-6} mTorr to about 5 mTorr.

15. (Previously Presented) A method of patterning a layer of photoresist which has been applied over a photomask substrate, comprising:

- a) post-apply baking said photoresist;
- b) exposing said photoresist to imaging radiation, whereby a pattern imaged photoresist is created ;
- c) post-exposure baking said pattern imaged photoresist;
- d) developing said pattern imaged photoresist to create a pattern having openings through said photoresist layer thickness; and
- e) exposing said developed photoresist to a vacuum at a substrate temperature within the range of about 20°C to about 60°C for a period of time within the range of about 10 minutes to about 60 minutes, at a process chamber pressure ranging from about 5×10^{-6} mTorr to about 5 mTorr, whereby an improvement in line edge roughness of pattern openings of said developed photoresist is obtained .

16. (Original) A method in accordance with Claim 15, wherein said imaging radiation is e-beam radiation.

17. (Original) A method in accordance with Claim 15, wherein said imaging radiation is optical radiation.